assembly comprising an air aspirated nozzle, a compressor to provide air under pressure to said air aspirated nozzle, a fuel supply to supply liquid fuel at ambient pressure to said air aspirated nozzle and a metering valve interposed between said liquid fuel supply and said air aspirated nozzle, said metering valve being adjustable during operation of said burner assembly to increase or decrease the liquid fuel supplied to said air aspirated nozzle from said liquid fuel supply.

REMARKS

Claim 1 has been amended in today's paper to clearly distinguish over the Nutten et al and Velie references cited by the Examiner. Claims 1-8 remain in this application and stand for examination. Reconsideration and reexamination are requested in view of the amendments to claim 1 and the comments made hereinafter.

Rejection of claims 1 and 2 for obviousness

The Examiner rejects claims 1 and 2 under 35 U.S.C. 103(a) as being obvious over Nutten et al United States Patent 3,428,406 in view of Valie United States Patent 3,909,188.

The Nutten et al '406 reference is of interest because it teaches a zero pressure regulator 60 which is of a similar construction to the zero pressure regulator used in the present invention. However, that is the end of Nutten et al's similarity. Nutten et al do not teach adjustable fuel flow to their nozzle with a metering valve because their fuel flow is not metered and there is no metering valve between the fuel supply and the air aspirated nozzle as the Examiner correctly notes. Nutten et al select a desired regulator to meet the fuel characteristics required by the nozzle. Upon such selection, the fuel supplied to the nozzle is constant and fixed during operation and does not change with the result that the heat produced by the burner is constant. The disadvantages falling from the production of such constant heat is that if the

temperature in the room or enclosure is too hot, the fuel flow cannot be reduced so the only solution is to terminate operation of the burner. If the temperature in the room or enclosure is too cold, the users remedy is to stand closer to the heater. The Nutten et al burner therefore clearly is not very useful where temperature differences in the surroundings vary from time to time.

Velie '537 (or Velie United States Patent 3,909,188) has been discussed previously in some depth. Velie '537 differs substantially from the present invention in that both the air supply and the fuel supply are under pressure as is distinct from the present invention where only the air is under pressure and the fuel to the nozzle is received due to the suction created at the aspirated nozzle by the air under pressure. Velie '537 teaches an air atomising nozzle (see Velie '188, col. 6, lines 3-13). Velie's fuel restrictor valve is used to set a single flow rate and does not teach incremental adjustments during operation. In other words, Velie first adjusts the air pressure to the nozzle. Thereafter, he adjusts the flow rate to match the air pressure using a "fuel flow restrictor 48". As stated at col.4, lines 32-34, the fuel restrictor 48 "...is sized to provide the desired fuel pressure and flow rate to nozzle 14 at the primary air pressure selected."

The flow restrictor of Velie '537 does not provide the necessary incremental adjustment for proper combustion using an air aspirating nozzle. This is so because Velie's nozzle is an air atomising nozzle. If the fuel flow to the nozzle 14 is increased, smoke from the too rich combustion can result and if the fuel flow to the nozzle 14 is decreased, the flame may extinguish. These conditions are clearly disadvantageous. In contradistinction, the air under pressure to the air aspirating nozzle of the present invention draws the necessary fuel for proper combustion. By metering the fuel, the nozzle will only draw the quantity of fuel allowed to pass through the metering valve. This allows the heat generated by the combustion of the air and fuel to be adjusted between high fuel flow and low fuel

flow conditions to which the aspirated nozzle is designed. This is very useful.

The Examiner advises that Nutten et al is considered to be an infrared burner. With respect, this is not so. Nutten et al do not illustrate a flame within a tube or cylinder or even a burner. Nutten et al do not show an infrared burner which is of the type that has a combustion flame substantially within a tube or cylinder which flame thereby heats the tube or cylinder and creates infrared heat or radiation. The flame of Nutten et al is outside any such combustion tube.

By today's paper, claim 1 has been amended to provide for fuel flow adjustment during operation of the burner. This fuel flow adjustment is supported within the specification, for example, at page 20, lines 11-15 and is not taught or suggested by Nutten et al or either of the Velie references, taken singly or in combination. Accordingly, claim 1 is submitted to be allowable.

Claim 2, being dependent from claim 1, is submitted to be allowable for the same reasons claim 1 is submitted to be allowable.

Rejection of claims 3-8 for obviousness

The Examiner rejects claims 3-8 under 35 U.S.C. 103(a) for obviousness over aforementioned Nutten et al '406 in view of Velie and further in view of Hapgood United States Patent 3,830,221.

Hapgood teaches a zero pressure regulator as is clear from Figure 1 but he does not otherwise assist Nutten et al and/or Velie taken individually or in combination, in reaching the teachings of the present invention. Claims 3-8 are dependent from claims 1 and 2 and, for the same reasons claims 1 and 2 are deemed to be allowable, claims 3-8 are likewise submitted to be allowable.

The Haruhara, Ishihara, Varbel, Brigs and Bonne et al references are noted.

In view of the above, reexamination and withdrawal of the objections and rejections is requested and allowance of claims 1-8 is solicited.

Respectfully submitted,

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Date: June 11, 2001

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